

REMARKS**Summary of the Amendments**

By the foregoing amendment, claims 1-18 are amended, whereby claims 1-18 remain pending. Of the pending claims, claim 1 is independent.

Support for the amendments to the claims can be found, for example, in the originally filed specification and claims, and is also inherent therein. Support for the amendment to claim 1 can be found, for example, in Figs. 10A and 10B and their accompanying description with regard to the uniform thickness of the buffer layer 14. Support for the amendment to claims 9-14 and 16 can be found, for example, in claim 8. Applicants further note that claims 8-18 have been amended to clarify the claims so they are in conformance with U.S. practice, such as for example to remove "step" language from the claims. Applicants submit that no new matter is added.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Information Disclosure Statement

Applicants thank the Examiner for consideration of the disclosure statement filed September 21, 2005, by returning an initialed copy of the Form PTO-1449 submitted therein.

Claim of Priority

Applicants thank the Examiner for the acknowledgement of Applicants' claim of priority to Japanese Application No. 2002-381944.

RESPONSE TO CLAIM REJECTIONS**1. Response to Rejection under 35 U.S.C. § 112, second paragraph**

The Office Action rejects claims 1-18 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. In particular, the Office Action asserts that line 14 of claim 1 is indefinite because "said lower layer" lacks antecedent basis. In addition, the phrase "type" was rejected. In addition, the Office Action asserts that claims 2-18 are indefinite because they depend from rejected claim 1.

In response, Applicants have amended the claim to recite "said lower electrode" instead of "said lower layer" so as to correct a typographical error in the claim. In addition, Applicants have removed the phrase "type" from the claims to advance prosecution of the application. Applicants note that the scope of the claims have not changed as a result. Therefore, Applicants respectfully request withdrawal of the 35 U.S.C. § 112, second paragraph rejection of claims 1-12.

2. Response to Rejection under 35 U.S.C. § 102(b)

Claims 1-2 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by ICHIHARA (EP 1 094 485).

In this ground of rejection, it is asserted in the Office Action that ICHIHARA discloses all the recitations of claims 1-2, and specifically that ISHIHARA discloses a field emission electron source (see Figure 1) comprising an insulative substrate (11), an electron source element (combination of 8, 9, 3, 6, and 7) having a lower electrode (8), an amorphous buffer layer (3) having greater resistance than polycrystalline silicon, a strong drift layer (6) including polycrystalline silicon, and a surface electrode (7). See Paragraphs 14, 15, 21, 56, 74, and 90.

In response to the anticipation rejection, Applicants note that a rejection under 35 U.S.C. § 102 can only be maintained if every element of the rejected claim is found in a single prior art document.

Applicants note that ICHIHARA fails to disclose every element of the rejected claims. Specifically, ICHIHARA fails to disclose at least the specific recitation of a “buffer layer being composed of a film which is uniformly formed over the whole area on the side of said surface of said insulative substrate,” as claimed. Therefore, for at least this reason, ICHIHARA fails to anticipate the presently claimed invention.

In contrast with the present claims, and according to the technique disclosed in ICHIHARA, the film thickness, film quality (resistance, interface barrier, etc.), or distribution of the amorphous silicon layer) is not controlled, and therefore the film is

subject to non-uniformity, on account of the resistance variance, and electron energy which is not distributed uniformly. (See, e.g., ICHIHARA at paragraph [0021] – [0024]). In particular, if the polycrystalline silicon layer is formed under the condition of high crystallization ratio in order to improve the film quality of the polycrystalline silicon, variation (*i.e.*, non-uniformity) of the thickness, quality or distribution will become much larger.

On the other hand, the claims recite a “buffer layer being composed of a film which is uniformly formed over the whole area on the side of said surface of said insulative substrate,” which is not disclosed in ICHIHARA. Thus, according to the present invention, the buffer layer can act as a buffer resistor which can reduce the variation (*i.e.*, non-uniformity) of the current flowing through the electron source. Accordingly, the uniformity of the properties of the electron source can be improved. Further, in the case where the polycrystalline silicon layer is formed on a substrate (*e.g.*, a glass substrate) through which infrared rays can pass, the variation (*i.e.*, non-uniformity) of the film quality of the polycrystalline layer can be reduced.

As apparent from Figs. 10A and 10B of the present application, and their accompanying descriptions, the example having the buffer layer as presently claimed has a lower in-plane variation in brightness as compared to the example having no buffer layer. In this regard, it should be noted that the brightness can depend on the level of emission current. Thus, the Example shows that having the buffer layer provides a lower in-plane variation in emission current than that of an example having no buffer layer. Furthermore, Figs. 10A and 10B show that the uniform thickness of the buffer layer (for

example 100 nm) can provide sufficiently enhance in-plane uniformity in electron emission characteristic.

In view of at least the above arguments, and the failure of ICHIHARA to disclose at least “buffer layer being composed of a film which is uniformly formed over the whole area on the side of said surface of said insulative substrate,” as presently claimed, Applicants respectfully request that the the rejection under 35 U.S.C. § 102(b) be withdrawn.

With respect to dependent claims 2-18, Applicants submit that because ICHIHARA does not disclose all the recitations of independent claim 1, claims 2-18 are therefore patentable because they depend from claim 1 which is also patentable, as demonstrated above.

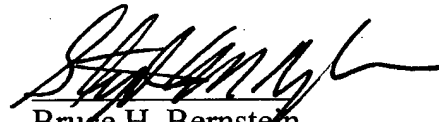
Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 102(b) rejection of claims 1-2 as being unpatentable over ICHIHARA.

CONCLUSION

In view of the foregoing, it is submitted that none of the cited documents of record, either taken alone or in any proper combination thereof, anticipates or renders obvious the Applicant's invention, as recited in each of claims 1-18. In addition, the applied cited documents of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully Submitted,
Tsutomu ICHIHARA et al.



Bruce H. Bernstein
Reg. No. 29,027

March 21, 2007
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191

Stephen M. Roylance
Reg. No. 31,296